Pacific Packet Radio Society

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NEWSLETTER

May 1985

de KE6ZE 17 April 1985

PPRS continues to grow. We now have 83 paid memberships. As I stated last month we need about 100 members to keep a healthy organization going. When you have a QSO with somebody new to packet radio, invite them to one of our meetings. Leave a message for me on one of the local mail boxes (or give me a call) so I can expect them at the meeting and introduce them. We can all "recruit" in this manner and in the end PPRS will be the better for it.

The exciting news to come out of the series of meetings during the conference is the potential of a link at 9600 Bits/second between SF and LA. The folks that have access to mountain tops and equipment have agreed in principal to put up a 9600 baud 220 Mhz link between the two areas. We will have 1200 baud 145 Mhz access to the link at each end, so we won't have to change our station equipment Hopefully, Steve Goode's modem can be applied to a more reliable equipment set and we consumers of the Westnet link can have good access into the LA basin.

Most of the existing Westnet link to LA is provided us courtesy of another amateur group organized under the W6AMT club call sign. Our conduit to this group is via George Flammer, WB6RAL. George is a member of PPRS and is on the PPRS board of directors. George is not given to bragging much about their system. So, you generally don't know what he has done for the SF packet community. Take it from us on the board he has done a lot, and we all owe him and his group. Let him know you appreciate it next time you see him.

Equipment on the move: Hank, KA6M is going to move KA6M-1 and KA6M-2 to 145.09 in the next month (maybe by the time you read this). So, if you have been a user of the repeater or Data General and can not find them them, take a look on 145.09. With this move only KA6NAN-1 is still left on 146.58. We should all try to use the new frequencies when possible. While 146.58 is coordinated for non-voice and we fall into that category, who knows there may be another (different, better ?) mode lurking out there waiting for a frequency to pounce on.

The hope of the PPRS board of directors is to provide a central repository of Packet Radio information and help for new commers to this exciting and innovative communications mechanism. The old PPRS existed to hold meetings at which information could be exchanged. The board is not going to determine what the new PPRS exists for. We are here to do with the membership what the membership wants. All of us have been barraged with "we need", "you should", "why don't you", "how can you" do this thing or that thing. The board is here to provide the springboard to enable YOU to do almost anything. Don't ask us to do for you, rather ask us how we can provide you with the means to accomplish your needs. Give us direction as to what we should be doing. Should we own equipment? Should we coordinate repeater sites? Should we design equipment for Packet Radio (a la TAPR)? HELP! Just what should we do? Let us know your desires and PARTICIPATE.

The board of directors is nothing more than a group of individuals motivated to keep PPRS going. All board members are actively participating in doing something for the PPRS. If you are willing to to help out please give me a call at 408/251-2910.

Be sure to come to the next PPRS meeting we have a video tape of TAPR's Lyle Johnson, WA7GXD. He explains the exciting new things TAPR is doing for an encore after the "TAPR Board". This is the same announcement he is making at Dayton this year. A PPRS exclusive!

73, Dave Engle, KE6ZE

Report on the March 30, 1985 WESTNET meeting
at the
4th Annual ARRL Computer Networking Conference
San Francisco, California

The second WESTNET meeting was held as the last saturday night session of the packet radio meeting in San Francisco. It was attended by the following list of amateurs, some as participants, some as observers:

NI6A	WB6AIE	VE7APU	WB6ASR	KB6BA	N6BPL	NOCCZ	WB6DAO
WD6E	WD6EEN	KB6EMU	N6FQR	WB6FSK	WA6FSP	WB6GTI	WB6HHV
W6IXU	WA6JPR	NK6K	KA6M	WB6MLC	KA1MRI	KB5MU	WA5MWD
K9NG	WA6OSA	WB5OYP	WA6PZD	WB6RAL	WA6RWN	W6SNV	KA6SOX
KA7TWQ	WB6YMH						

The following groups were represented:

Los Angeles Area Packet Radio Group (LAPG), Oregon Packet Radio Association (OPRA), Pacific Packet Radio Society (PPRS), Rocky Mountain Packet Radio Association (RMPRA), Southern California Digital Communications Council (SCDCC), San Diego Packet Group (SDPG), Tucson Amateur Packet Radio (TAPR).

In addition letters, from UPRA(N7BHC) and NWPRA (KB7DZ) were received and their input made available to the group.

The meeting was organized by NI6A and PPRS, it was chaired by NK6K.

The purpose of the meeting was to gather those amateurs with software, digital hardware, RF hardware, and mountain-top expertise and who share the common goal of improving and extending the west coast packet radio network to determine the next steps toward reaching that goal.

Background.

The first WESTNET meeting, held nearly two years ago, laid the the groundwork for the present network, a set of digipeaters that links California's southern border to a point north of Sacremento. It was this meeting that generated the proposal to expand the number of AX.25 digipeater address fields to eight. Although it was realized at that time that a link made up of many digipeaters was far from optimum, the primary purpose of the first WESTNET meeting was to put in place the best network possible with the technology then available. It was hoped that linking San Diego through Los Angeles to San Francisco would help generate interest at the endpoints and in the less populous areas in between, and that the increased user base would supply the resources to build a more sophisticated network in the future.

Packet has experienced a 660% increase in California since the first WESTNET meeting. We are now ready to proceed with the first in a series of improvements, the installation of a 9600 baud backbone.

The same WESTNET philosophy holds for this round of updates, i.e., don't wait on the next innovation which is coming "real soon now", make do with what we have and get something running before the snow falls above 5000 feet. At the same time, don't build anything that will make transfer to the next level of technology difficult.

VESTNET '85

In the spring of 1985, the amateur community still hasn't defined a networking layer protocol. This should be no great surprise, since the commercial world has been arguing about it far longer than we have. We don't have any running prototypes, either. What we do have is a 9600 baud modem design, the ARRL Lab's n-port digipeater software, nearly 350 users in the current WESTNET area running 1200 baud on two meters, and a chain of 7 digipeaters with frequency translation between southern California on 145.36 and northern California at 145.01.

The first step toward improving this situation was to change the southern California bandplan to add the national packet radio frequency 145.01 MHz and get it coordinated for packet radio digipeaters. This was done by a vote of the membership of the Two Meter Area Spectrum Management Association of Southern California (TASMA) in late March.

Phase I of WESTNET '85, agreed to at this meeting, is to install 145.01 digipeaters in southern California. This will remove the need to perform frequency translation in Santa Barbara and will reduce the maximum number of hops to five, with only three hops required to link San Francisco to LA. An immediate improvement in network service will result.

Phase II is to install n-port digipeaters, 220 MHz radios, and 9600 baud modems at each of the digipeater sites. Each digipeater will be linked to its neighbors at the higher baud rate and frequency, and will provide user access to that link via 145.01 MHz at 1200 baud. This will avoid collisions between local traffic around each digipeater and the traffic passing through the digipeater on its way to a more distant point. While not as good as a true network protocol, this will provide vastly improved service over that which is currently available. An appendix to this report will describe the benefits in greater detail, as well as describing the n-port digipeater that makes it possible.

Since the n-port digipeater is implemented on surplus Xerox 820 boards, WESTNET can switch to a true layer three network when one becomes available. The Xerox 820 was designated as the target hardware for the first prototype layer three network software at the ARRL Digital Committee meeting in 1984.

Once in place, WESTNET will allow a user to use the network as if it were a simple chain of digipeaters. He will transmit and receive on 145.01 MHz. If he specifies more than one digipeater in the connect path, his packet will be repeated between digipeaters at 9600 baud on 220 MHz. The packet will be transmitted on 145.01 MHz by the last digipeater in the list. Standard digipeaters can be used on 145.01 as far as necessary in the event a user can not directly access an n-port digipeater site.

It is expected that by the WESTNET '86 meeting, and certainly by WESTNET '87, there will be a true network layer protocol in place, a large number of users and most host/mailbox systems will access the network directly at 9600 baud on 220 MHz, and that the backbone network will be on 1.2 GHz at 56K bps. We also suspect that the 145.01 network access and digipeat capability will always be needed; to handle entry level users, as a redundant path for network failure and resiliency in case of emergency, and to handle users in extreme outlying areas where the number of users and traffic loads do not justify high bandwidth equipment.

SPECIFICS

The following items were specifically agreed to at this meeting.

The W6IXU mailbox, located in Arroyo Grande, half way between San Francisco and Los Angeles on 145.01 MHz is to be used for WESTNET design and implementation discussions and information postings.

The primary two meter input to WESTNET will be 145.01 MHz, using the current Bell 202 1200 baud standard. Other two meter operations can also link in on the 220 MHZ frequency, e.g. the 146.745/.145 duplex repeater in southern California, so long as only those packets intended for the link are passed to the link.

The 220 MHz link frequency is 220.950 MHz.

The 220 modem standard is the K9NG 9600 baud modem.

The controller to be used is the Xerox 820, running the ARRL Lab's n-port digipeater code.

Another WESTNET meeting will be held at the Southwestern Division ARRL Convention in Long Beach. The meeting will be hosted by SCDCC on Saturday night, August 10, 1985. Location to be announced.

Administration.

It was agreed that a specific network administrator was not needed at this time, nor was any formal structure for WESTNET required. The information gathering and dissemination will be left to the two Network Coordination Agencies (NCAs) in WESTNET's current boundaries, SCDCC and PPRS.

Anyone using these access standards is invited to become part of WESTNET. The process is not terribly formal, it requires that you:

1) use the above standards (else how can you link to the net?)
2) Send a list of the digipeaters and locations to NI6A at PPRS to be added to the master list.
3) Announce yourself as part of WESTNET.

HELP (INCOMING)

If you want to help WESTNET grow, or are putting up a 1-port digipeater and want to know a location or frequency that can fill in a hole in our service area, please contact the NCA nearest you.

Northern California:

PPRS
P.O. Box 51562
Palo Alto, CA 94303

Southern California:

SCDCC
P.O. Box 6026
Mission Hills, CA 91345

HELP (OUTGOING)

We will publish details of how this all comes out as soon as we can, including details of 220 rig modification, software mods to the n-port digipeater code, state machine PC boards for the 820, etc.

Until then, please go to the original source for details. The n-port code is available from Jon Bloom at ARRL HQ. Details of the K9NG modem are available in the Proceedings of the 4th Annual ARRL Computer Networking Conference, available through the ARRL. TAPR will be distributing PC boards for the modem in the future.

Harold Price, NK6K

NARC COORDINATES 220.9 THRROUGH 221.0 MHZ FOR WIDEBAND DIGITAL PACKET

AT THE APRIL 13 BOARD MEETING OF NARC(HELD AFTERTHE GENERAL MEETING) , IT WAS DECIDED TO COORDINATE 220.9 THROUGH 221.0 MHZ FOR USE OF WIDEBAND DIGITAL PACKET. THIS FOLLOWED A PPRS PETITION. THIS WILL ALLOW US TO CONTINUE WITH OUR PLANS TO PLACE A 220.95 (CENTER FREQUENCY9.6 K BAUD BACKBONE SYSTEM INTO EFFECT ASAP. THE 220 SPECTRUM MANAGEMENT AGENCY FOR SOUTHERN CALIFORNIA HAD ALREADY GIVEN PACKET COORDINATION FOR 220.9 THROUGH 221.1 MHZ. SINCE IT THE NORTH, 221.0-221.1 IS CO-ORDINATED FOR CONTROL LINKS , THE 220.9-221 MHZ BAND WAS THE ONLY COMMON FREQUENCY BETWEEN NORTHER AND SOUTHERN CALIFORNIA THAT WAS POSSIBLE TO OBTAIN AT THIS TIME.

AT THE NARC MEETING, WE ARE HAPPY TO ANNOUNCE, K6IXA GRADY, WAS ELECTED TO THE NARC BOARD OF DIRECTORS.GRADY WILL NOT ONLY BRING MANY YEARS OF EXPERIENCE TO THE BOARD BUT WS MANY OF YOU KNOW HAS BEEN INSTRUMENTAL IN IMPLEMENTING THE W6BXN DIGIPEATER AT FREMONT PEAK . WE ARE FORTUNATE TO HAVE SOMEONE IN THIS PLACE OF RESPONSABILITY WHO UNDERSTANDS THE NEEDS AND PROBLEMS OF PACKET RADIO.

MIDLAND 220 RADIOS SOUGHT -

WE ARE ATTEMPTING TO LINK AT 9.6K BAUD ON 220 MHZ. WE ARE LOOKING FOR SUITABLE 220 RF GEAR.ANYONE HAVE ANY SOURCES OF MIDLAND 220 RADIOS ? PLEASE CONTACT NI6A OR W6IXU.

SITES AND EQUIPMENT SOUGHT

WE ARE STILL COLLECTING SITE LOCATION AVAILABILITY. IF YOU HAVE A HIGH LEVEL REPEATER SITE AND HAVE SPACE FOR A PACKET RADIO STATION PLEASE CONTACT WB6RAL OR NI6A. IF YOU HAVE EQUIPMENT AND WOULD LIKE TO HELP FURTHER THE LINKING PLEASE CONTACT NI6A. WE HAVE MORE SITES NOW THAN WE HAVE EQUIPMENT AND WOULD LIKE TO PUT INTERESTED PARTIES TOGETHER BY SHARING THIS RESOURCE LIST. WE HAVE SITE POSSIBILITIES AT GRIZZLY PEAK (BERKELEY) HAMILTON AFB (SAN RAFAEL, BLUE RIDGE (EXETER), MONTEBELLO RIDGE, MT. TAM-ALPAIS (WE NEED A $700 COMBINER PLUS EQUIPMENT FOR THIS ONE), AND A FEW OTHERS THAT ARE AWAITING EQUIPMENT/FUNDING. LET ME REMIND US ALL THAT ALTHOUGH WE HAVE MADE GREAT PROGRESS IN LINKING THERE ARE MANY WHO CANNOT ACCESS THE DIGIPEATERS ESPECIALLY IN AREAS OF THE NORTH BAY , SACTO, AND THE REST OF NORTHERN CALIFORNIA. WE ALSO NEED MORE DIGIPEATERS ON 145.03 MHZ SO PEOPLE WILL HAVE A PLACE FOR NON-LINKING DIGIPEATING. WE ALSO NEED REPEATERS FOR THE MAILBOXES ON 145.09 MHZ.

NEWSFLASH: FCC PROPOSES AUTOMATIC CONTROL FOR AMATEUR STATIONS ABOVE 30 MHZ.

A NEWS RELEASE DATED APRIL 10 DESCRIBES THE NOTICE OF PROPOSED RULEMAKING(NPRM) IN PR DOCKET 85-105, IN WHICH THE FCC STATES THAT THIS MAY BE THE APPROPRIATE TIME TO EXPAND AUTOMATIC CONTROL OPERATIONS IN ORDER TO UTILIZE NEW TECHNOLOGY, SUCH AS COMPUTER BASED MESSAGE SYSTEMS. THE PPRS NEWSLETTER WILL KEEP YOU INFORMED OF THIS DOCKET DETAILS. COPIES MAY BE GOTTEN FROM THE FCC. COMMENTS SHOULD BE SENT TO THE FCC AFTER YOU THOROUGHLY READ THE NPRM.

NEW DIGIPEATERS NOW ACTIVE

SINCE THE LAST PPRS NEWSLETTER THE FOLLOWING DIGIPEATERS HAVE BEEN ACTIVATED BY A DEDICATED BUNCH OF PACKETEERS. THANKYOU GUYS!

CALL	QTH	ELEV	COVERAGE	FREQ
W6BXN	ABOVE MARIPOSA	4300'	AMT-RWN-SJV	145 01 (FREQUENCY AGILE)
W6AMT-2	SANTA YNEZ(SANTA BARBARA)	4000'	ARROYO GRANDE-SAN DIEGO	145.01
W6AMT-3	PALOS VERDE	1500'	LA BASIN/SD	145 01
KA6SOX-1	PAINTED CAVE(SANTA BARBARA)		ARROYO GRANDE-SAN DIEGO	145 01
NK6K-1	PALOS VERDES	1400'	LA BASIN	145 01
WB6HHV-1	SAN DIEGO	500'	SAN DIEGO	145.01

TRY SOX-1 and AMT-2 FOR DIRECT SAN DIEGO STATIONS OR OTHERW SE GO AMT-2 (OR SOX-1) TO WB6HHV-1 OR W6SE . 3 HOPS TO SAN DIEGO FROM THE BAY AREA IS NICE!

WHATSNEW IN COMMERCIALLY AVAILABLE AMATEUR PACKET TNCS

KANTRONICS OFFERS THE "PACKET COMMUNICATOR"

KANTRONICS OF LAWRENCE KANSAS HAS ANNOUNCED THE AVAILABILITY OF THEIR ENTRY INTO THE COMMERCIALLY WIRED AND TESTED AMATEUR TNC MARKET WITH THEIR "PACKET COMMUNICATOR". IT COMES WIRED AND TESTED IN AN EXTRUDED ALUMINUM SCASE MEASURING 1.9"H X 5.9"W X 8" D. IT COMES WITH AN EXTERNAL POWER SUPPLY AND CABLES FOR TRANSCEIVER AND COMPUTER. IT SUPPORTS BAUD RATES OF 300,400,600, AND 1200 BAUD OVER THE AIR. ON THE TERMINAL SIDE IT WILL OPERATE AT SELECTABLE RATES OF 300,1200 , OR 9.6K BAUD. IT CLAIMS TO USE THE TAPR SOFTWARE UTILIZING ALL THE STANDARD TAPR COMMANDS AND OPERATION PROCEDURES INCLUDING VANCOUVER PROTOCOLS. CONNECTIONS TO YOUR COMPUTER (TERMINAL) IS SELECTABLE EITHER SERIAL RS=232 OR TTL PORTS. ADDITIONAL FEATURES INCLUDE A SWITCH TO ALLOW YOU TO SWITCH FROM BELL 103 OR 202 TONE PAIRS MAKING HF AND VHF OPERATION CHANGEOVER MUCH EASIER THAN THE TAPR KIT. THERE IS PROVIDED AN ADDITIONAL FEATURE TO USE THIS TNC AS A STAND-ALONE 1200 BAUD MODEM FOR ASCII OR OTHER CODES. KANTRONICS WILL SOON ANNOUNCE A SPECIALLY DESIGNED TERMINAL PROGRAM TO WORK WITH MOST POPULAR PCS CALLED"PAC-TERM". SUGGESTED LIST RETAIL PRICE OF THE WIRED AND TESTED UNIT (NO KITS WILL BE AVAILABLE) IS $389.95.

AEA OFFERS THE ATU-1000

AEA HAS JUST ANNOUNCED THE ATU-1000 -ADVANCED TERMINAL UNIT. IT IS A BUILT-IN PACKET TNC, AND MORSE/BAUDOT/ASCII/AMTOR/SITOR/ TERMINAL UNIT! IT HAS 32 POLES OF ACTIVE FILTERING! OTHER FEATURES INCLUDE:SET RECEIVE FILTERS TO ONE HZ ACCURACY;SET MARK AND SPACE FILTERS INDEPENDENTLY FROM 1000 TO 3000 HZ; ALL SHIFTS 170 HZ FIXED OR 0 TO 2000 HZ ADJUSTABLE; SET AFSK OUTPUT TONES INDEPENDENTLY FROM 1000 to 3000 HZ TO ONE HZ; 5 MV TO 5 V AGC; FRONT PANEL SQUELCH CONTROL; BUILT-IN 4 DIGIT COUNTER; CW FILTER ADJUSTABLE 700 TO 2500 HZ; D.C. COUPLED AUTOMATIC THRESHOLD CORRECTION; TWIN FULL-WAVE DETECTORS; BUILT-IN TTL/RS-232/ AND LOOP KEYER I/O ; DISCRIMINATOR TYPE TUNING INDICATOR; FSK,AFSK AND SCOPE OUTPUTS;13 VDC OPERATION WITH 110 VAC ADAPTOR SUPPLIED; TTL I/O LOGIC INVERSION FOR USE WITH VIRTUALLY ANY SOFTWARE:OPTIONAL 19 INCH RACK MOUNT KIT. BAUD RATES ARE 300 BAUD AND BELOW.WHAT A SHAME! IN THE AEA ANNOUNCEMENTS. THE LIST PRICE IS $1195 AND SHOULD BE AVAILABLE IN MID-MAY 1985.

HEATH OFFERS THE HD-4040 PACKET TNC KIT

IN THE SPRING/SUMMER 1985 HEATHKIT CATALOG YOU WILL FIND A TNC KIT. THE HEATH DEALERS PROMISE AVAILABILITY BY MIDDLE APRIL. IT WILL RETAIL FOR $299.95 AND FROM ALL INSPECTIONS WILL BE A FULLBLOWN TAPR CLONE KIT. THE NOTED DIFFERENCES ARE THAT THE CABINENT IS INCLUDED WITH THIS PRICE AND ALTHOUGH NOT BEING A DELUXE CABINENT KIT COMPARED TO THE TAPR IT OFFERS THE SAME FEATURES AT A REDUCED COST. IN ADDITION HEATH PROVIDES ADDITIONAL DATA ON THE HARDWARE (NOTABLY THE 6809) FOR THE COMPUTER AND HARDWARE EXPERIMENTERS WHO LIKE TO PLAY. FROM MOST REPORTS THIS IS NOT A CHEAPENED TAPR CLONE BUT USES THE SAME QUALITY COMPONENTS AS THE TAPR KITS. WE WONT GO INTO DETAIL OF WHAT IT DOES,AS THE TAPR TNC ABILITIES ARE READILY AVAILABLE ELSEWHERE.

W0RLI Mailbox/Gateway

Commands that control the system:

B Bye. Log out of the mailbox. Forced if no response to a menu in 4 minutes.

G Activate the gateway.

H Display the help text.

I Display information about the system.

J Display the calls of stations recently heard or connected.

T Talk to system owner. Dings the bell on the local terminal. Gives up after one minute, or input from the TNC.

X Toggle between the short and long form of the menu.

Commands that apply to messages:

K Kill a message.
Qualifier:
T Used to kill traffic after it is taken.
Argument:
Message number to be killed.

L List message headers.
Qualifier:
None All messages.
B Bulletins only.
M Messages addressed to you only.
T NTS traffic only.
Argument:
Number List from this message number on.
> Messages *to* call given as argument.
< Messages *from* call given as argument.

R Read a message.
Argument:
Message number to read.

S Send a message.
Qualifier:
None A general message.
B A bulletin.
P A private message.
T Traffic for the NTS.
Argument:
Call of addressee.

Commands that apply to file transfers:

The mailbox expects standard CP/M file names:
Examples: DOC.TNC VHFCALLS.HRD UHFCALLS.HRD
(8 character maximum name, 3 character maximum extension)

D Download a file *from* the mailbox.
Argument:
Name of file to transmit.

U Upload a file *to* the mailbox.
Argument:
Name the uploaded file will have. Terminate the file with ^Z.

W What files are available.
Argument:
If present, file specification to list.

Commands on the Gateway menu:

C Attempt a connection.
Argument:
Call of station to connect to, may include digipeater routing:
Example: C N1CB via KD2S-1,WA1TLN-1

U Call CQ. Whatever you transmit will be transmitted through the other TNC in UNPROTOCOL mode.

R Return to the mailbox. Discontinue gateway operation.

ARRL AD HOC DIGITAL COMMUNICATIONS ADVISORY COMMITTEE MEETS IN SF MARCH 31.

THE MEETING STARTED AT 10 AM AT THE HOTEL UNION SQUARE IN DOWNTOWN SAN FRANCISCO WITH 35 ATTENDEES. THE MEETING WAS CHAIRED BY PAUL RINALDO, W4RI , AND ALL THE NOTABLES OF PACKET RADIO WERE THERE. HAROLD PRICE BEGAN WITH AN UPDATE ON THE AMSAT PACSAT PROJECT AND THE 1985 WESTNET MEETING. OLD BUSINESS WAS DISCUSSED REGARDING TURNAROUND TIME FOR PACKET OPERATIONS WITH PRESENT DAY TRANSCEIVERS. IT WAS DECIDED THAT THE NEXT ANNUAL COMPUTER NETWORKING CONFERENCE WILL BE HELD IN ORLANDO FLORIDA DURING THE SECOND WEEKEND OF MARCH. DOUG LOCKHART , VE3APU, WILL FINISH THE X.3 STANDARD AND PRESENT IT AT THE NEXT MEETING OF THE ARRL DCAC. THE NEXT TAPR SOFTWARE VERSION NUMBER 4 WILL BE READY FOR DAYTON AND THE 4.1 VERSION WILL HAVE THE X.3 AVAILABLE. TERRY FOX , WB4JFI, AND PHIL KARN,KA9Q, DISCUSSED LEVEL 3 PROGRESS. IT WAS REPORTED THAT JON BLOOM ,KE3Z,OF THE ARRL LABS IS WORKING ON A LEVEL 3 CODE WRITTEN IN C THAT WILL RUN ON A XEROX 820 BOARD. ISSUES DISCUSSED WERE: USER DYNAMIC ROUTINGS, USER ASSIGNED ROUTINGS, TPI WITH CHECK SUM OPTIONS, ADDRESS ASSIGNMENTS ACCORDING TO (A) CALLSIGNS (B) AREA CODES-ZIP CODES (C)GRID SQUARES, ETC.

HANK MAGNUSKI, KA6M , AND PAUL RINALDO, W4RI, WILL WORK ON X400 STANDARD FOR TRAFFIC HANDLING USE. TOM MOULTON, W2VY, MAY ALSO HELP ON THIS PROJECT. ONE ISSUE IS HOW TO HELP MAILBOX OWNERS SORT ELECTRONIC MAIL, EDIT,DISTRIBUTE, ETC. THERE PRESENTLY ARE NO EASY METHODS DELINEATING THE SUBJECTS,BEGINNING, ENDING, DISTRIBUTION , AND HANDLING OF SUCH MESSAGES. IT IS HOPED THAT THIS INVESTIGATION WILL HELP DEFINE THE METHODOLOGIES UTILIZED IN AMATEUR PACKET THIRD PARTY TRAFFIC AS WELL AT LEVEL 7. NK6K SAID THAT THE TAPR VERSION 4.0 WILL HAVE MULTIPLE CONNECT CAPABILITY AS WELL AS CHANGING THE WORD 'BEACON' TO 'QST.' INSTEAD OF SAYING 'BEACON' EVERY 'N', IT WILL READ 'QST' EVERY 'N' , ETC.

MANY REGULATORY MATTERS WERE DISCUSSED INCLUDING PROGRESS ON THE ARRL PROPOSED RULE MAKING FOR AUTOMATIC BBS OPERATION . IT WAS ALSO DECIDED THAT THE ARRL WILL ASK THE FCC TO EXTEND THE STA ON AUTOMATIC GATEWAY SATELLITE SYSTEMS FOR ONE YEAR ADDITIONALLY, FOR MORE ADEQUATE TIME TO MAKE AN EFFORT IN THIS AREA.

TAPR IS INTERESTED IN COMING OUT WITH A MINIMUM LEVEL 3 BOARD- THE 8530 PROCESSOR WAS CONSIDERED AS WELL AS THE AMD 7910 UNIVERSAL MODEM. ALSO TAPR IS GOING TO MAKE AVAILABLE STEVE GOODES' 9.6 K BAUD MODEM BOARD IN A KIT AND ALSO A 220 RADIO, BUT THIS PROJECT IS AT LEAST A COUPLE OF MONTHS AWAY.TAPR IS DEDICATING ITSELF TO SUPPORTING THE LINKING EFFORTS. TAPR WILL ALSO CONTINUE MAKING THE FAD-PAD , A PACKET ASSEMBLER-DISASSEMBLER BOARD FOR THE XEROX 820 CREATING A SCC DUAL PORT SYSTEM. THIS IS AN UNPOPULATED BOARD THAT CREATES A RELIABLE DUAL PORT DIGIPEATER OUT OF THE XEROX 820. TERRY FOX, WB4JFI, HAS WORKED OUT A CODE FOR THIS 'FAD-PAD' THAT WILL ALLOW ITS OPERATION UP TO FOUR PORTS,BUT IS PRIMARILY FOR LEVEL 3 EXPERIMENTERS. YOU MUST PROVIDE YOUR OWN HDLC CHIP (CONTACT FADCA FOR INEXPENSIVE SOURCES).

W4RI REPORTED ON THE EXPERIMENTS OF HIS PACKET ADAPTAVE MODEM (PAM) HF EXPERIMENTS WHICH ARE UNDERGOING TESTS. PHIL KARN HAS WORKED OUT THE BUGS FOR HIS XEROX 820 TNC PROGRAM WHICH PERMITS MULTIPLE CONNECTIONS. HE IS ALSO WORKING ON A LEVEL 3 FORMAT FOR THIS COMPUTER.A PROJECT WAS INITIATED TO ALLOW TESTING OF AX.25 DIGITAL VERIFICATION.

FROM: Mike Busch W6IXU
1127 Hetrick Avenue
Arroyo Grande, CA 93420

DATE: 03-Feb-85

SUBJECT: Two-Rig Interconnect Circuit

The following circuit is being used successfully at W6IXU to interface two transceivers to a single TNC. It allows us to monitor two different frequencies simultaneously, and to perform cross-frequency digipeating.

Our first attempt at such interconnection used passive RC components to simply add the output of the two receivers together to provide audio input to the TNC. Not surprisingly, this approach had some problems. Whenever both receivers were active at the same time, the TNC could not copy either one. Consequently, we concluded that a priority switching circuit driven by squelch information from each receiver was necessary.

The circuit connects the TNC audio input to the receiver whose squelch opens first, and locks out the other receiver until the first receiver's squelch closes again. Therefore, when packets arrive at both receivers at approximately the same time, the TNC will copy whichever arrived first.

The circuit depends on a squelch signal from each receiver which indicates whether or not the receiver is squelched. It is generally very easy to find such a signal in any solid-state transceiver (often at the "channel busy" LED). The signal may be either active-high or active-low, so long as "high" does not exceed the supply voltage and "low" does not go negative. If both receivers have active-low squelch information, then the 4069 inverter IC may be omitted. The circuit provides a composite active-low squelch output signal for AEA PKT-1 (or TAPR TNC's with the squelch input modification).

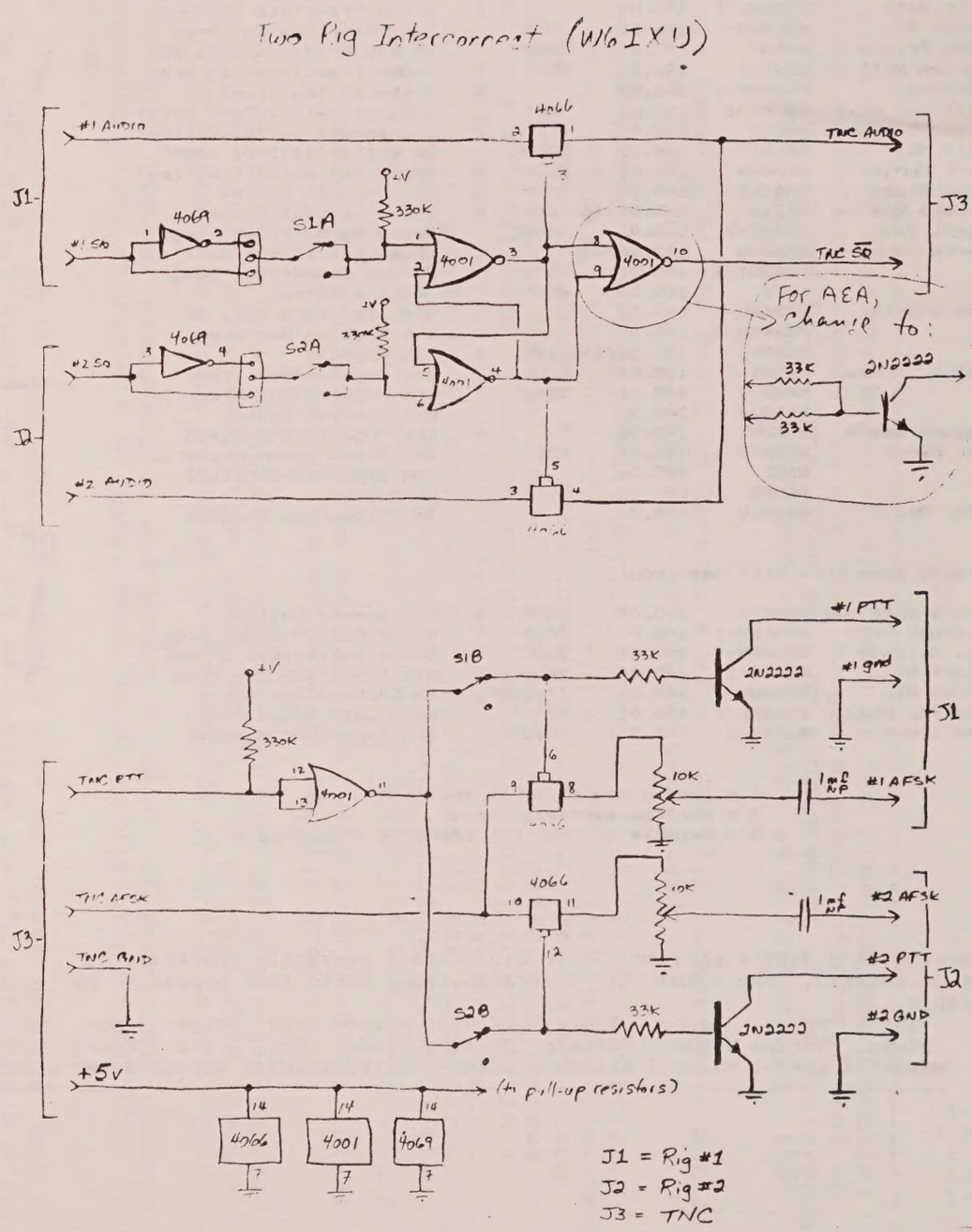
The circuit has two DPDT center-off switches, one for each radio. The three switch positions correspond to "ON", "OFF", and "RECEIVE-ONLY" functions. In the latter two positions, the PTT and AFSK outputs to the radio are deactivated. For packet-only installations (such as digipeaters), the switches may be omitted.

The circuit provides individual trimpots allowing the AFSK output level to each transmitter to be adjusted independently. The AFSK output level of the TNC (R33) will probably have to be adjusted to a higher-than-normal level to compensate for insertion loss.

The supply voltage may be anything between +5 and +15 volts (we use +5 volts), and may be derived from the TNC power supply. The circuit uses CMOS logic and draws very little current, so it can even be powered from a 9-volt battery.

PARTS LIST

AEA	TAPR	
	1	4001 CMOS quad nor gate
	1	4049 CMOS hex inverter (optional)
	1	4066 CMOS quad analog switch
3	2	2N2222 NPN transistor
4	2	33K 1/4-watt resistor
	3	330K 1/4-watt resistor
	2	10K trimpot
	2	1 mf capacitor (non-polarized)
	2	DPDT center-off submini toggle switch (optional)
	3	DB9S connector
	3	14-pin IC socket
		perf-board, minibox, hardware (as desired)



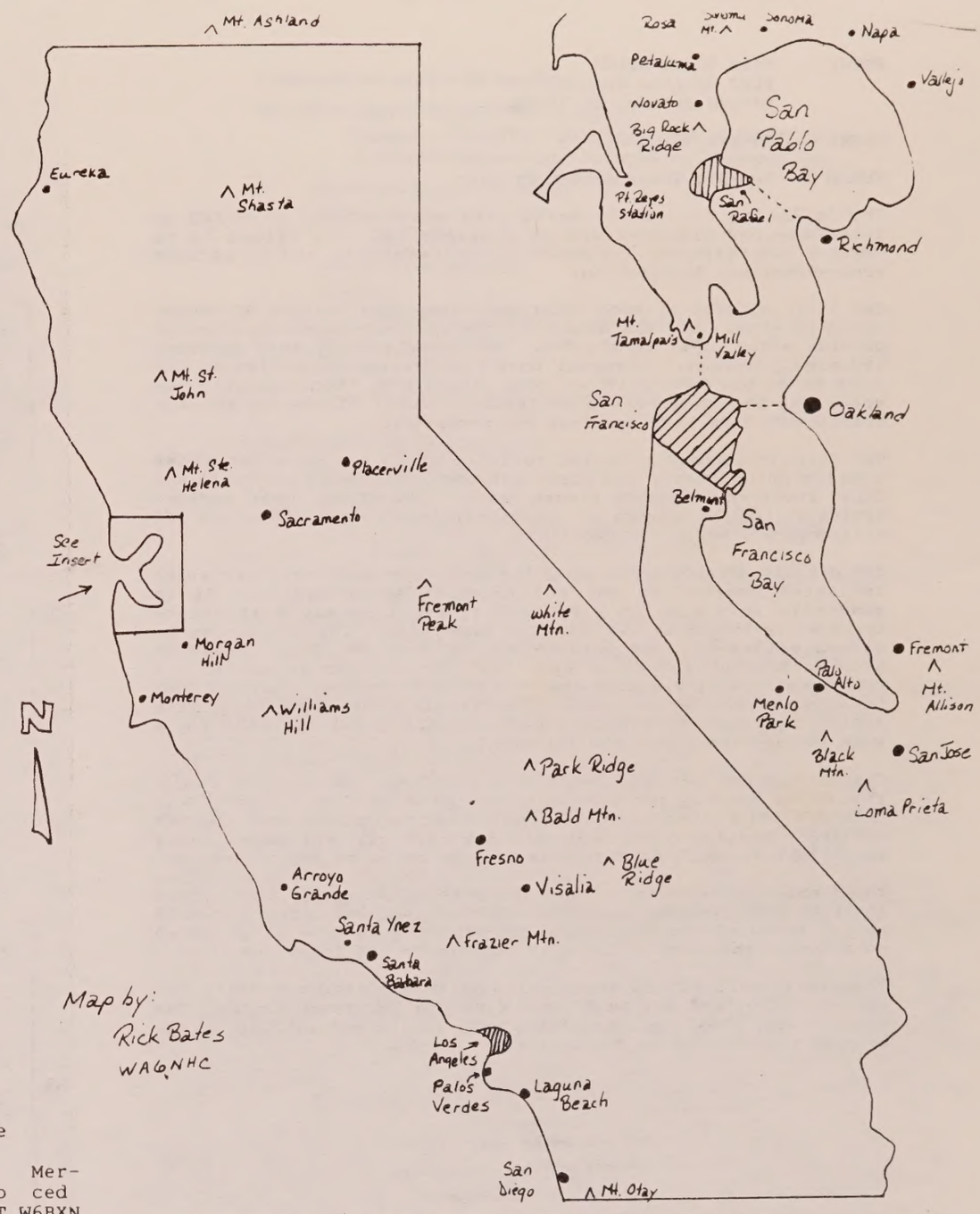
Two Meter Digipeater and Mailbox Sites of California

Site Location	Call Sign	Freq	Hgt ASL	Notes	Coverage Area
Oakland	K6VCO-2	146.58	700'	‡	San Francisco Bay Area
Belmont	KA6M-2	146.58	500'	‡	San Francisco Bay Area
Menlo Park	KA6M-1	146.58		‡#	S San Francisco Bay Area
Palo Alto	WB5VUL-1	145.09		#	S San Francisco Bay Area
Black Mt.	KA6NAN-1	146.58	2400'		San Francisco Bay Area
Loma Prieta	W6AMT	145.01	3800'		SF Bay Area/San Joaq Val
Morgan Hill	W3VS-1	146.58	800'	‡	S San Francisco Bay Area
Monterey	WA1NHP-1	146.58		‡	Monterey low level
Williams Hill	W6AMT-1	145.01	2800'		Salinas Valley/Cent Coast
Fremont Peak	W6BXN	145.01	4300'	↻	Sacramento Val/SJ Valley
Bald Mt.	WB6AIE-1	146.58	5300'		SJ Valley (145.01 soon)
Park Ridge	WA6RWN	145.01	8000'	↻	South San Joaquin Valley
Blue Ridge	WA6YLB	145.01	5700'	↻	San Joaquin Valley
Arroyo Grande	W6IXU	145.01/440	200'	#	South Central Coast
Santa Ynez	W6AMT-2	145.01	4000'		Santa Barbara/San Diego
Santa Barbara	WB6DAO	145.36/440			crossband link IXU/TZ
	KA6SOX-1	145.01	3200'		Arroyo Grande/San Diego
	K6TZ	145.36	400'		Santa Barbara
Los Angeles	WB5EKU-1	145.36			Simi,San Fern Val, SD
	WB6YMH-2	145.36		#	Los Angeles/San Diego
	N6BGW	145.36/146.145		#	Los Angeles
Palos Verdes	W6AMT-3	145.01	1500'		Los Angeles/San Diego
	NK6K-1	145.01	1500'		Los Angeles/San Diego
	WA6OZJ	145.36			Los Angeles Basin
Laguna Beach	WB6UUT	145.36		#	Los Angeles/San Diego
San Diego	WB6HHV-1	145.01	500'		San Diego (soon higher)
	W6SE	145.36			San Diego (Encinitas)
	W6MNO	145.36			San Diego
(Mt. Otay)	WB6WLV	144.76			San Diego/Los Angeles

Coming soon to a hill near you:

Sacramento Val	W6AK-5	145.03	2300'	↻	Sacramento Valley
Melcher Hill	WA6FSP-1	145.03	1000'		S San Francsco Bay Area
Mt. Allison	WB6RFW-1	145.01	2600'	↻	Sacto Valley/So. SF Bay
Black Mt.	N6IIU-1	145.01	2400'	↻	San Francisco Bay Area
White Mt.	WA6RWN-1	145.01	14,200'		So CA/No AZ/So NV
Frazier Peak	WA6GML-1	145.01	8000'		Kern Co./LA/San Diego
San Diego	W6AMT-4	145.01	4000'		San Diego/Los Angeles

‡ = moving to 145.09 at any time
# = mailbox system on line
↻ = capable of remotely changing frequency



Following is a matrix showing the 10 digipeaters presently operating as part of WESTNET. The symbol "+" indicates those paths that appear to be reliable.

	San Diego WB6HHV-1	Palos Verdes NK6K-1	Palos Verdes W6AMT-3	Santa Barbara KA6SOX-1	Santa Barbara W6AMT-2	Arryo Grnde W6IXU	King City W6AMT-1	Visa-lia WB6RWN	San Frsco W6AMT	Mer-ced W6BXN
HHV-1				+	+					
NK6K-1			+	+	+					
AMT-3		+		+	+					
SOX-1	+	+	+		+	+				
AMT-2	+	+	+	+		+	+			
IXU				+	+		+			
AMT-1					+	+		+	+	
RWN							+		+	+
AMT							+	+		+
BXN								+	+	

Note that we now have considerable redundancy available. For example, Los Angeles to Sacramento may be accomplished by:

W6AMT-3 -> W6AMT-2 -> W6AMT-1 -> W6AMT -> W6BXN -> K6QIF
NK6K-1 -> W6AMT-2 -> W6AMT-1 -> W6AMT -> W6BXN -> K6QIF
W6AMT-3 -> KA6SOX-1 -> W6IXU -> W6AMT-1 -> W6AMT -> W6BXN -> K6QIF
NK6K-1 -> KA6SOX-1 -> W6IXU -> W6AMT-1 -> W6AMT -> W6BXN -> K6QIF
W6AMT-3 -> W6AMT-2 -> W6AMT-1 -> WA6RWN -> W6BXN -> K6QIF
NK6K-1 -> W6AMT-2 -> W6AMT-1 -> WA6RWN -> W6BXN -> K6QIF
W6AMT-3 -> KA6SOX-1 -> W6IXU -> W6AMT-1 -> WA6RWN -> W6BXN -> K6QIF
NK6K-1 -> KA6SOX-1 -> W6IXU -> W6AMT-1 -> WA6RWN -> W6BXN -> K6QIF

It appears that the most critical digipeater at the moment is W6AMT-1, since loss of it would cripple all available paths north of Santa Barbara.

To all PPRS members: The board of directors at our previous board meeting decided to add some impetus to the move to get a transcontinental link up and running. Accordingly, Hank, KA6M made an announcement at the conference in San Francisco last month and sent the following as a follow up to the ARRL:

At the meeting of the Board of Directors of the Pacific Packet Radio Society on March 21st, 1985, the following resolution was passed:

Whereas the Pacific Packet Radio Society was one of the first societies formed specifically to encourage the growth of computer networking via radio using all digital concepts and techniques, and whereas the San Francisco area was the site of the nation's first amateur digipeater, and whereas an even greater challenge faces the amateur radio community to establish a transcontinental link, the Pacific Packet Radio Society has decided to establish a unique award to encourage the completion of the first terrestrial transcontinental network link. This one-time award shall be known as the "Golden Packet" award, and the regulations relating to it are listed below:

1. A transcontinental link must be established, with each terminus located within 100 kilometers of either the Atlantic or Pacific Ocean.

2. The system must consist of fixed terrestrial digital store-and-forward radio links using VHF (greater than 144.1 MHz.), UHF or microwave frequencies. Use of HF, satellite, tropo, metscat or moonbounce channels is prohibited.

3. A valid two-way transmission and acknowledgement of previously unknown information (256 characters or more) must occur in real time (less than ten minutes).

4. This competition is open only to validly licensed North American amateurs, and no commercial links or services may be utilized in the path. Club stations are permitted.

5. Proof of the exchange must be adequately documented and submitted to the PPRS. Proof must include a list of the stations in the link, their locations, frequencies used, and a copy of the text exchanged.

6. The reward shall consist of a suitably engraved plaque with the names of all participating stations listed which shall be presented to the ARRL. Each participating station shall receive either a plaque or a certificate.

7. Final decision on the award is subject to review and approval by the Board of Directors of the Pacific Packet Radio Society.

NORTH COAST PACKET RADIO GROUP FORMING

The first meeting of the North Coast Packet Radio Group will be held on Tuesday, May 14, at 8:00 PM. A social hour will be held from 7 to 8. The location is: 520 Mendocino Avenue, Room 340, Santa Rosa, CA. Telephone: 707+578-1288. The first General Meeting will include a demonstration of Packet Radio, a surprise Guest Speaker, and special interest group meetings.

For directions, the two-meter FM voice Simplex channel at 146.52 MHz is being offered when you arrive. You may also be able to reach Paul KA6ATN on the 145.25 repeater (WA6YGD) if you are not in Simplex range.

Take the Downtown Santa Rosa Exit off Route 101 and drive North to Sixth St. Turn right, then left to Seventh St. The building is near the corner of Mendocino and Seventh Sts. All amateurs are welcome.

Pacific Packet Radio Society
P.O. Box 51562
Palo Alto, CA. 94303

FIRST CLASS MAIL

TO:

H.S. Magnuski, KA6M
311 Stanford Ave
Menlo Park, CA 94025